

Sterling Business Intelligence™

Concepts Guide

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Overview of Sterling Business Intelligence

An online transaction processing (OLTP) database is used in Sterling applications. The OLTP database is a relational database and consists of tables, views, aliases, indexes, stored procedures, triggers, events, and so on. This database stores a lot of operational and transactional data. Because there are performance implications in accessing large volumes of data on the transactional system, the OLTP is designed for performance and not for analysis. It is difficult to analyze such voluminous data and take business decisions based on this transactional data.

Sterling Fulfillment solution ships operational reports that answers questions such as, "When was order 84305 shipped?" This query, for example, reflects the basic mechanics of conducting a business. It involves simple data selection and retrieval of one record (or several related records) identified by a unique order number. This record has a life span in the transactional world. It begins when a customer places the order and ends when the order is shipped and paid for. After this period, the record is archived.

In contrast, a typical series of analytical queries may include, "How do the sales in the Pacific Rim for this quarter compare with sales a year ago? Which products are generating more business? Which are the frequently returned products and why are they returned?" These are not questions about conducting business transactions, but about analyzing past performance and taking decisions that will improve future performance, provide a more competitive edge, and enhance profitability.

Business Intelligence is the capability for gathering, storing, and analyzing data stored in various applications to help customers take intelligent and informed decisions about conducting their business.

The Sterling Business Intelligence solution helps extract information from the various applications used by an enterprise, analyze the data, and generate business reports with the help of IBM® Cognos® reporting tools. It helps to map and denormalize the transactional and operational data, and provides tactical information.

In the Sterling Business Intelligence solution, an analytic database is designed to provide the information required by decision makers whose ability to set goals is dependent on how well the business performed in the past. Consequently, the Cognos Business Intelligence layer is bundled as a part of the Selling and Fulfillment Foundation. The Sterling Business Intelligence solution leverages on the Cognos Business Intelligence layer to analyze the data, and generate the dashboards and reports.

Intended Audience

This document provides a high-level overview of the Sterling Business Intelligence solution to all the users.

Business Intelligence Terminology

This topic describes some of the Business Intelligence terminology used in Sterling Business Intelligence solution.

Schema: This is the logical and physical definition of data elements, physical characteristics, and inter-relationships in a database.

Data Warehouse: A data warehouse is a relational database that is designed for query and analysis, rather than for transaction processing. It usually contains historical data derived from the transaction data, and can include data from other sources too. It separates analysis workload from transaction workload, and enables an organization to consolidate data from several sources.

The schema designed for transactional processing is referred as online transaction processing (OLTP). The schema designed for analysis purposes is called online analytical processing (OLAP).

Data Mart: It is also known as local data warehouse. A data mart is a database that has the same characteristics as a data warehouse, but is usually smaller, and is focused on data for one division or one work group within an enterprise. Following are the data mart objects:

- ◆ Dimension Table

This is also known as a lookup table or reference table. It contains relatively static data in a warehouse, and stores the information that is usually used to contain queries. Dimension tables are usually textual and descriptive and can be used as row headers. Examples of dimension tables are Customers and Products.

- ◆ Fact Table

This is a large table in the data warehouse schema that stores business measurements. It typically contains facts and foreign keys to the dimension tables, and usually represents numeric and additive data that can be analyzed and examined. Examples of fact tables include Sales, Cost, and Profit.

- ◆ Summary Table

This is built in the database to reduce the amount of processing time involved in gathering data that is frequently used from the detailed fact table.

- ◆ Star Schema

This is the simplest data warehouse schema. It is called a star schema because the diagram resembles a star, with points radiating from the center. The center of the star consists of one or more fact tables and the points of the star are the dimension tables. A star schema optimizes performance by keeping queries simple and providing fast response time. All the information pertaining to each level is stored in one row. Star schema allows you to perform an analysis based on the metrics in a fact table by the attributes of the dimensions linked to it. For example, to calculate the total sales of a particular product in a quarter, the corresponding fact table is used to derive data. The product and time dimensions provide the contextual information about the particular product and the quarter.

- ◆ Snow Flake Schema

This is a type of star schema in which the dimension tables are either partly or fully normalized.

◆ ETL

The online analytical processing (OLAP) database should be loaded regularly to perform the task of facilitating business analysis. In order to load the database regularly, data from one or more online transaction processing (OLTP) systems must be extracted and copied into the data warehouse. The process of extracting data from source systems and bringing it into the data warehouse is commonly called ETL, which stands for extraction, transformation, and loading.

◆ Denormalization

The process of flattening the design of a database by adding redundant data or by grouping data is known as denormalization. A relational normalization database imposes a heavy access load on the physical storage of data even if the database is well tuned for optimal performance. In some cases, denormalization helps to resolve these inefficiencies in the relational database.

Sterling Business Intelligence Ecosystem

The Sterling Business Intelligence ecosystem consists of the following:

◆ **Sterling Source Database**

This database is the source database from where the data is extracted, transformed, and loaded (ETL) into the Sterling Staging Database using the IBM[®] Cognos[®] Adaptive Analytics Framework and IBM Cognos Adaptive Analytics Runtime.

◆ **Sterling Staging Database**

This is the database in which the incremental transaction data that is extracted, transformed, and loaded from the source is stored. The Sterling Staging Database is the source for the data mart database.

◆ **Sterling Data Mart Database**

The data in this database is dimensionally modeled to be analytics friendly. The Sterling Business Intelligence dashboards and reports are generated from this data using the IBM Cognos Adaptive Analytics and IBM Cognos Adaptive Warehouse tools.

Sterling Business Intelligence Dashboards and Reports

The Sterling Business Intelligence solution provides various dashboards and reports such as Perfect Order Dashboard, Volume Analysis B2B Dashboard, Order Velocity Dashboard, B2B reports, B2C reports, and so on.

Time Period

All the metrics in the Sterling Business Intelligence solution are associated with a time period. You can select the required time period from a drop-down list and view the reports and dashboards for the selected time period. The various hierarchies associated with the time period are Year, Quarter, Month, and Days.

Drill-Through Reports

The Sterling Business Intelligence solution allows you to drill through the reports and dashboards and view the details at the next level. You can use the drill-through option to view the detailed reports pertaining to those metrics that have the footnote 'Drill Through is Available on Chart', by right-clicking the corresponding metric.

A drill-through report links two reports containing related information. You can access related or more detailed information in one report by selecting a value in the other report. For example, in the Percentage Shipped on Time metric of the Perfect Order Dashboard, you can drill through and view reports pertaining to shipment nodes, channels, and categories.

Drill-Down and Drill-Up Reports

The Sterling Business Intelligence solution allows you to drill down and drill up the reports and dashboards. A drill-down report allows you to drill down to a lower level of the hierarchy, and a drill-up report allows you to drill up to a higher level of the hierarchy. Drilling up and down allows you to view either general or detailed information about your data within a selected category, without having to generate different reports. For example, when you click a bar graph pertaining to a quarter, you can view the report pertaining to the months in that quarter, and when you click the month bar, you can view the report pertaining to the days in that month.

IBM Cognos Products

The Sterling Business Intelligence solution leverages on the following IBM Cognos products for generating dashboards and reports.

◆ IBM® Cognos® 8 Business Intelligence

This is a Web-enabled reporting tool that is used for creating and managing ad hoc reports and scheduled reports. It includes Query Studio and Report Studio. Query Studio enables you to create ad hoc reports through a graphical user interface and save the reports in a variety of formats, such as PDF, Excel, real-time reports, or prompted reports. Report Studio is used to build reports that are maintained, reused, and require a higher level of complexity than a report produced in Query Studio.

◆ IBM® Cognos® Adaptive Analytics

This is a design tool to create the analytic model for reports. It is an information modeling environment for generating and deploying analytic reports and operational reports for use by customers. Adaptive Analytics makes your job of creating and administering reports faster and simpler.

◆ IBM® Cognos® Adaptive Warehouse

This is a design tool to construct a data warehouse and create a target model based on which the reports are created.

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